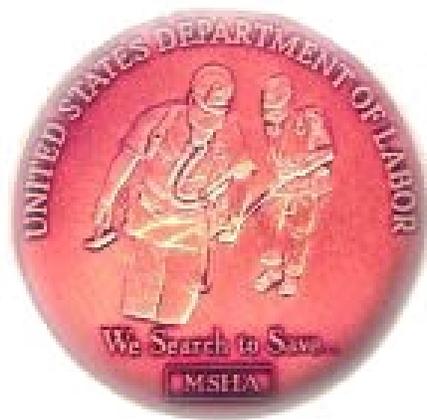


**Coal Mine Rescue Problem  
from the  
1999 International Mine Rescue Contest  
September 23, 1999**



### Mission Statement:

To promote and enhance mine rescue capabilities worldwide; mine rescue teams from various countries will participate in the first “International Mine Rescue Contest.” This international competition will provide a forum for the exchange of ideas in a number of areas, including rescue techniques, training, apparatus and gas detection equipment. The training and exchange of information will better prepare rescue teams to work in rescue and recovery efforts, enhancing both the level of safety for the teams and for miners worldwide. This event establishes a foundation for future intercontinental mine rescue contests.

**1999 INTERNATIONAL MINE RESCUE CONTEST  
SEPTEMBER 23, 1999**

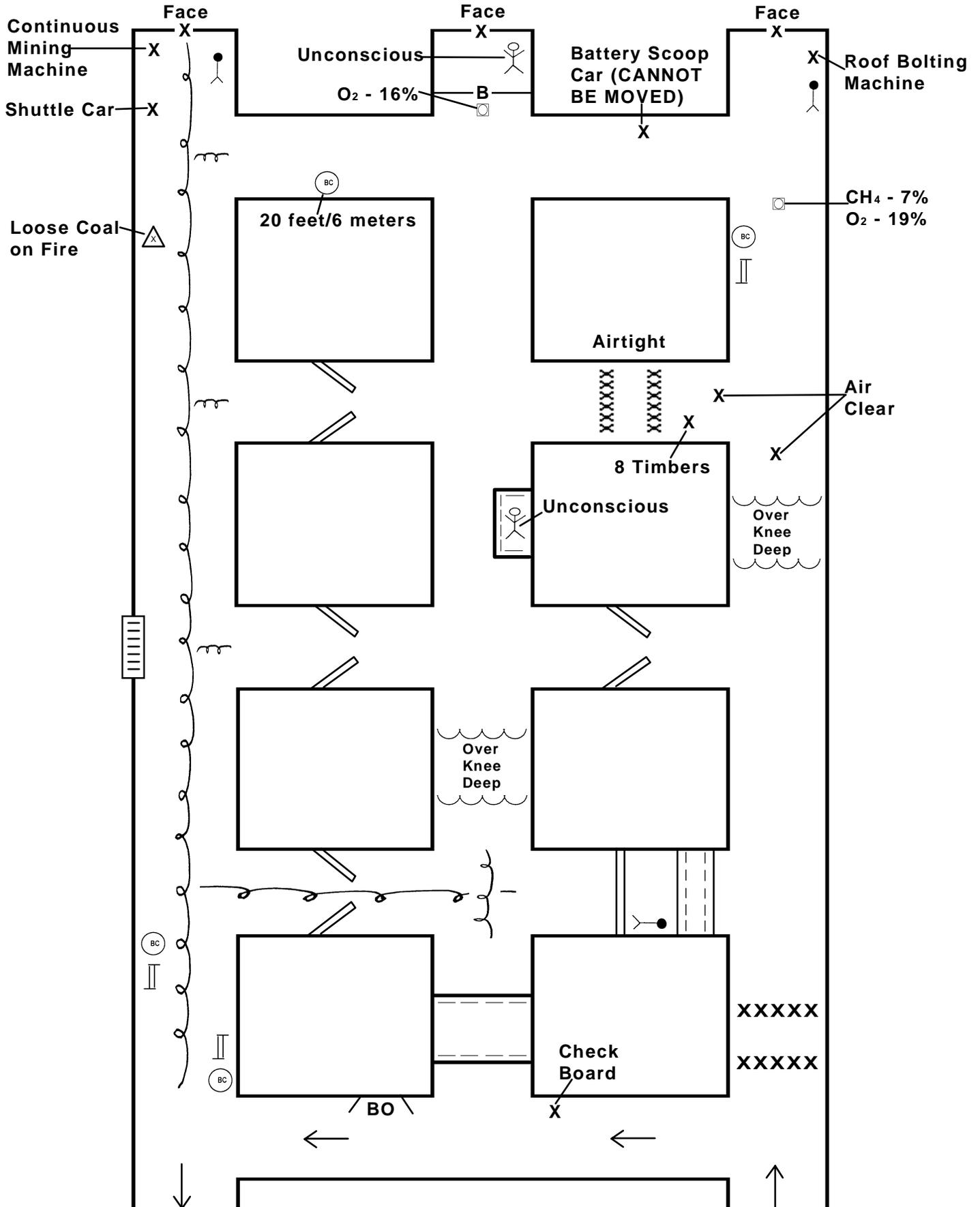
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**1999 International Mine Rescue Contest  
September 23, 1999**

**Superintendent's Statement**

**I am \_\_\_\_\_, Superintendent of the No. 3 Mine. You are located in the fresh-air base at the entrance of the 1 Right section. The section consists of three entries developed into virgin territory. The entries are numbered 1, 2, and 3, from left to right.**

**Early this morning, a (5) five-man crew entered the section to begin production activities. Shortly after 9:00 a.m., the production foreman attempted to enter the section, but encountered smoke and had to retreat. Attempts to contact the section have been unsuccessful.**

**The mine is ventilated by an exhaust fan installed on the surface. The fan is operating and is attended. Ventilation has been established through the fresh-air base. The section is normally ventilated by using the No. 3 entry as an intake and the No. 1 Entry as a return.**

**All electrical circuits inby this point have been de-energized, locked out and guarded.**

**Unless otherwise indicated, the coal is walking height and the roof is supported by roof bolts.**

**Water and explosive gases have been encountered at this mine.**

**We have a competent lifeline person to give and return signals (point this person out.) (If no lifeline, do not read this statement.)**

**A fully equipped and properly trained mine rescue team is here to serve as back-up while you are inby the fresh-air base.**

**A mine map and written instructions will be provided when you are ready to work.**

**1999 International Mine Rescue Contest  
September 23, 1999**

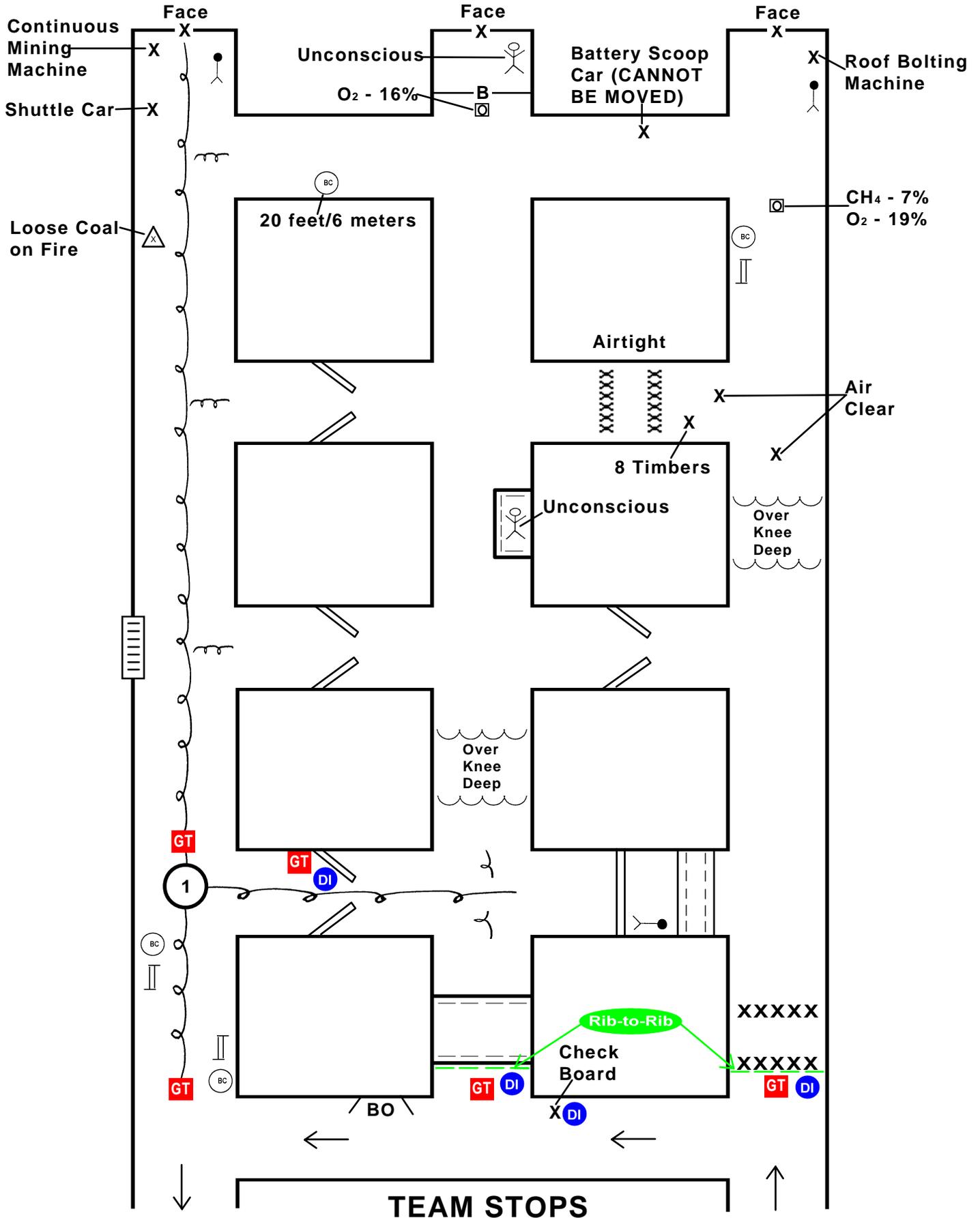
**PROBLEM**

**ACCOUNT FOR ALL MISSING MINERS**

**EXPLORE ALL AREAS OF THE MINE THAT CAN  
BE SAFELY EXAMINED**

# 1999 International Mine Rescue Contest

## September 23, 1999



**JUDGES EXPLORATION BRIEFING**  
**1999 INTERNATIONAL MINE RESCUE CONTEST**  
**September 23, 1999**



Teams must check all entrances to the areas to be explored prior to the entire team going in by the fresh air base (Rule 23C).

The team must be attached to the lifeline to check the entrance to the No. 1 Entry due to the presence of smoke (Rule 21).



Roof tests (rib-to-rib) are required (1) at the outby side of the unsafe roof in the No. 2 Entry and (2) at the outby side of the caved area in the No. 3 Entry (Rule 22).



DI's are required (1) on the check board (Rule 25) (2) at the unsafe roof in the No. 2 Entry and (3) at the caved area in the No. 3 Entry (Rule 26).

### **TEAM STOP NO. 1**

The team will advance to the 1st intersection in the No. 1 Entry. At this team stop, all team members and apparatus must be checked (50' test) (Rule 27).



Gas tests are required for the openings (2) of the intersection (Rule 23B). The gas tests for the opening toward the No. 2 Entry should be conducted at the damaged permanent stopping, which will suffice for the opening. If no tests are conducted at the stopping, discount under Rule 23A.



No roof tests are required at this team stop.



DI is required on the damaged permanent stopping in the opening toward the No. 2 Entry (Rule 26).

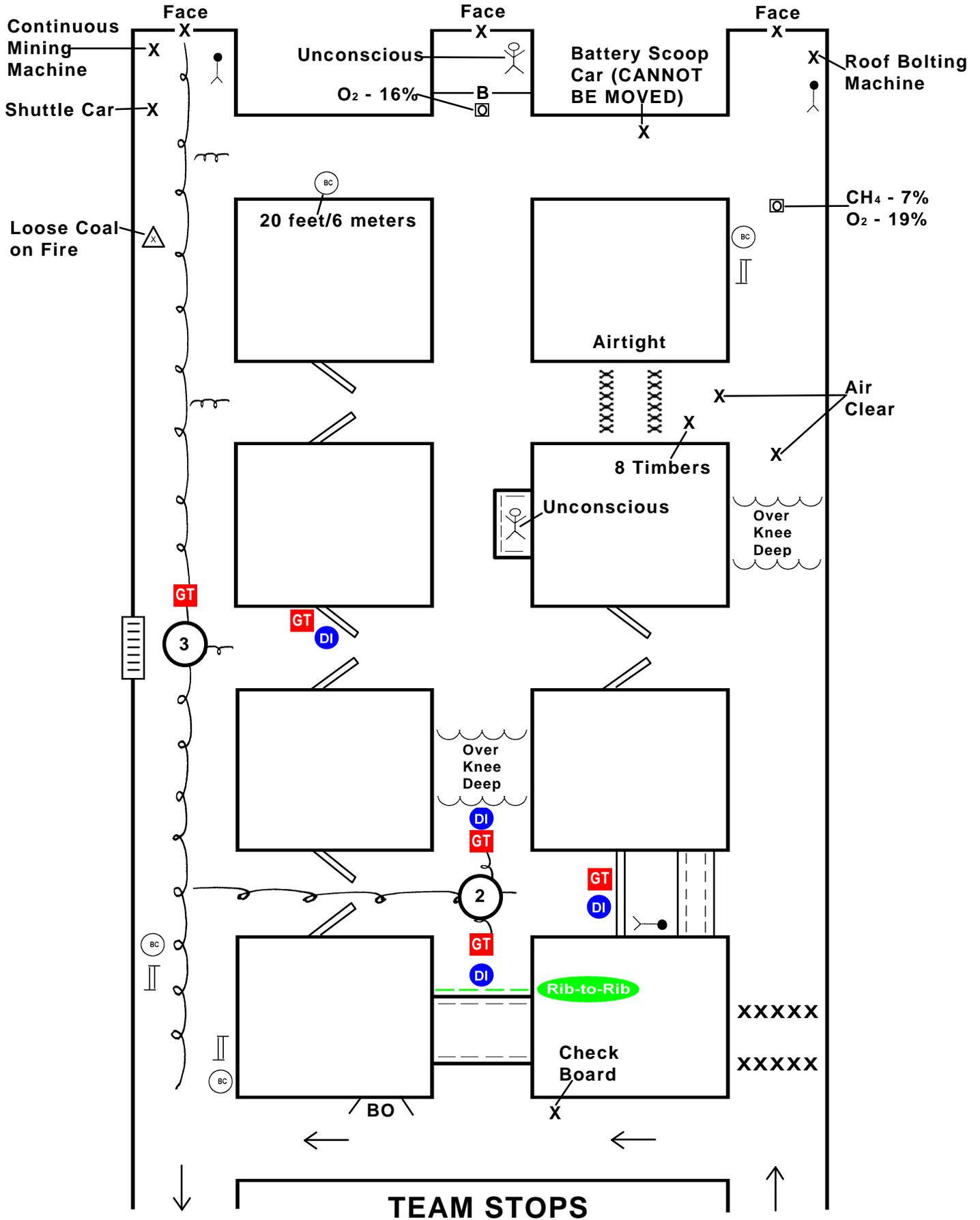
**\*NOTE:** Team will be in smoke and all team members must be attached to the lifeline (Rule 21).

Throughout the problem

-  will stand for gas tests required
-  will stand for roof and rib tests required
-  will stand for date and initials required

# 1999 International Mine Rescue Contest

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## TEAM STOP NO. 2

The team must advance to the 1st intersection of the No. 2 Entry (Rule 44C).

Gas tests are required for the openings (3) of the intersection (Rule 23B). The gas tests for the opening toward the No. 3 Entry should be conducted at the permanent stopping, which will suffice for the opening. If no gas tests are conducted at the stopping, discount under Rule 23A.

Roof tests (rib-to-rib) are required at the inby side of the unsafe roof in the No. 2 Entry (Rule 22).

DI's are required at (1) the inby side of the unsafe roof in the No. 2 Entry, (2) on the stopping in the opening toward the No. 3 Entry and (3) at the outby side of the water over knee deep in the No. 2 Entry (Rule 26).

**\*NOTE:** Team will be in smoke and all team members must be attached to the lifeline (Rule 21).

## TEAM STOP NO. 3

Team must advance to the 2nd intersection in the No. 1 Entry.

Gas tests are required for the openings (2) of the intersection (Rule 23B). The gas tests for the opening toward the No. 2 Entry should be conducted at the damaged permanent stopping, which will suffice for the opening. If no tests are conducted at the stopping, discount under Rule 23A.

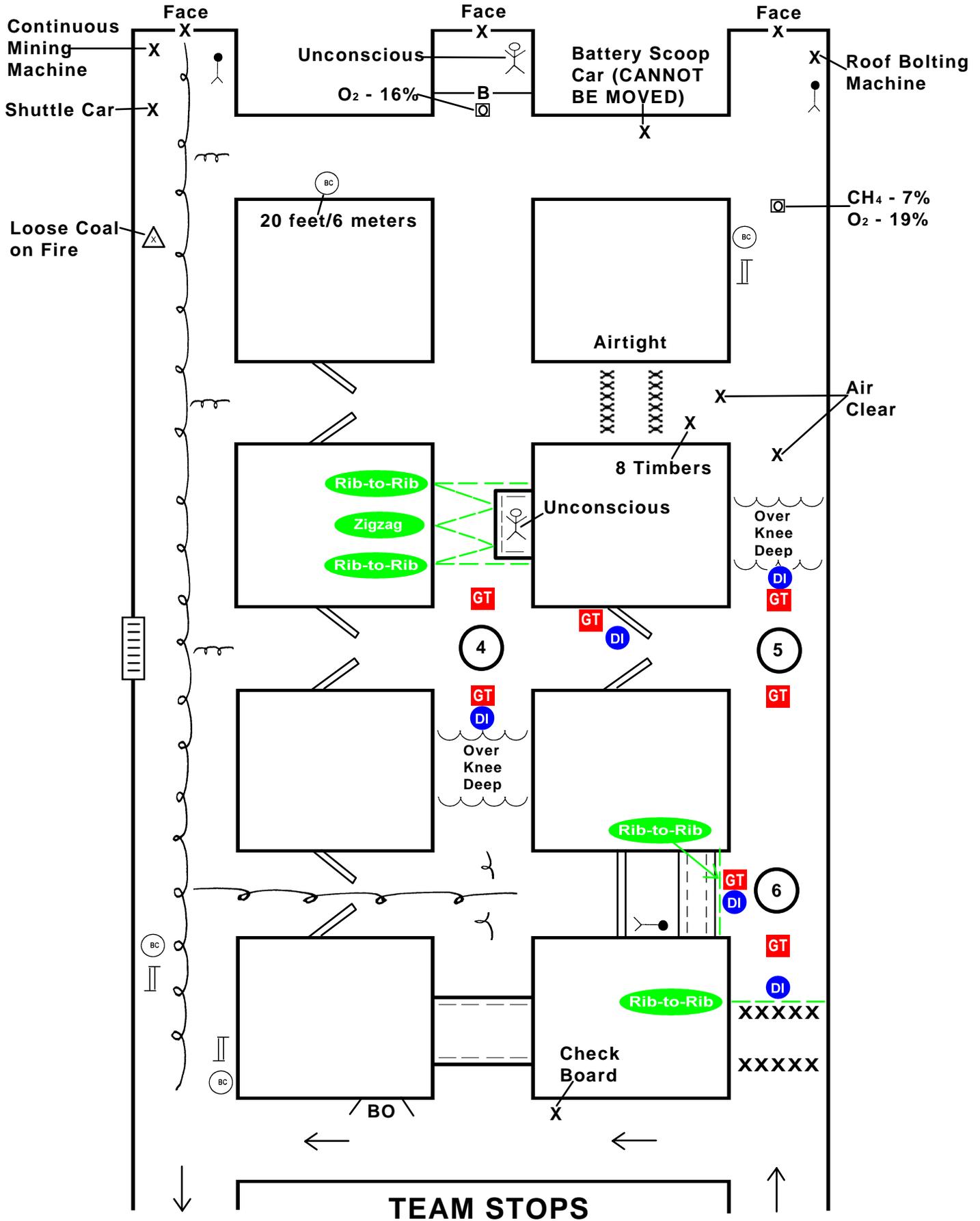
No roof tests are required at this team stop.

DI is required on the damaged permanent stopping between No. 1 and No. 2 Entries (Rule 26).

**\*NOTE:** Team will be in smoke and all team members must be attached to the lifeline (Rule 21).

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## TEAM STOP NO. 4

Team must advance to the 2nd intersection in the No. 2 Entry (Rule 44C).

Gas tests are required for the openings (3) of the intersection (Rule 23B). The gas tests for the opening toward the No. 3 Entry should be conducted at the damaged permanent stopping, which will suffice for the opening. If no tests are conducted at the stopping, discount under Rule 23A.

Roof tests are required for the unsafe roof along the right rib in the No. 2 Entry between the 2nd and 3rd intersection and shall be made rib-to-rib on the outby side, zig-zag from the left rib to unsafe roof and rib-to-rib on the inby side (Rule 22).

DI's are required (1) at the damaged permanent stopping between No. 2 and No. 3 Entries and (2) at the inby side of the water over knee deep in the No. 2 Entry (Rule 26).

**\*NOTE:** For the unconscious live person - no DI is required due to the lack of roof support.

## TEAM STOP NO. 5

Team must advance to the 2nd intersection in the No. 3 Entry (Rule 44C).

Gas tests are required for the openings (2) of the intersection (Rule 23B).

No roof tests are required at this team stop.

DI is required on the outby side of the water over knee deep in the No. 3 Entry (Rule 26).

## TEAM STOP NO. 6

Team must advance to the 1st intersection in the No. 3 Entry (Rule 44C).

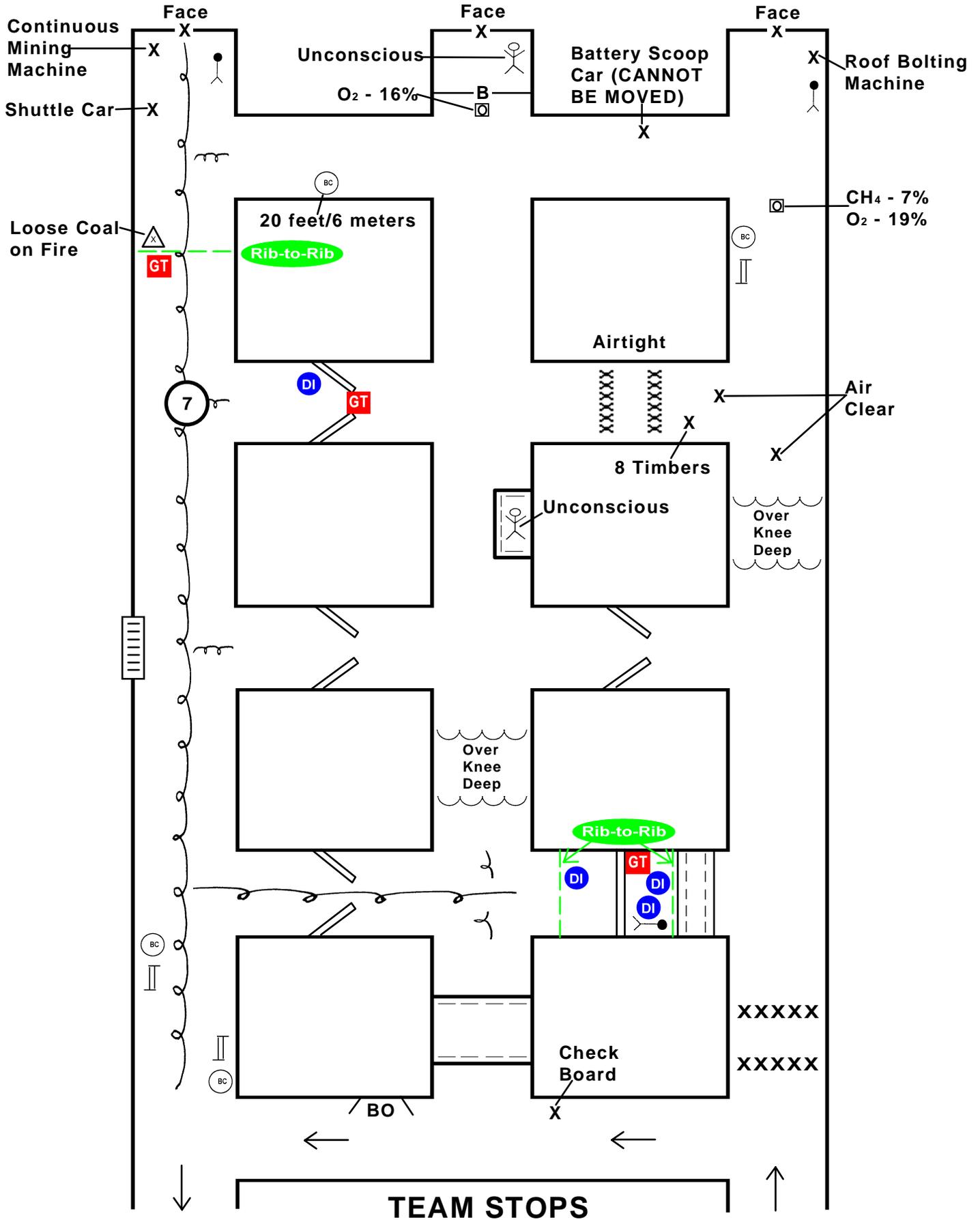
Gas tests are required for the openings (2) of the intersection (Rule 23B).

Roof tests (rib-to-rib) are required (1) at the unsafe roof in the opening toward the No. 2 Entry and (2) at the inby side of the caved area in the No. 3 Entry (Rule 22).

DI's are required (1) at the unsafe roof in the opening toward the No. 2 Entry and (2) at the inby side of the caved area in the No. 3 Entry (Rule 26).

# 1999 International Mine Rescue Contest

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**\*NOTE:** The team has now explored the two crosscut limit and must tie in all accessible areas outby (Rule 44D).

The team must retreat to the 1st crosscut between the No. 2 and No. 3 Entries and erect a temporary stopping (airlock) before breaching the permanent stopping (Rule 42).

Roof tests (rib-to-rib) are required at the location in which the airlock is to be erected (Rule 22).

DI is required on the temporary stopping erected by the team (Rule 26).

When the permanent stopping is breached, the captain must conduct gas tests prior to other team members entering the area (Rule 23D).

Roof tests (rib-to-rib) are required at the unsafe roof (Rule 22).

DI's are required (1) at the location of the body and (2) at the unsafe roof (Rule 26).

The captain must physically examine (by touching) the body (Rule 31).

**\*NOTE:** The team may now advance to the 3rd intersection in the No. 1 (contaminated) Entry OR the No. 2 (adjacent) Entry (Rule 44B).

## **TEAM ADVANCES TO 3RD INTERSECTION IN THE NO. 1 ENTRY**

### **TEAM STOP NO. 7**

Gas tests are required for the openings (2) of the intersection (Rule 23B). The gas tests for the opening toward the No. 2 Entry should be conducted at the damaged permanent stopping, which will suffice for the opening. If no gas tests are conducted at the stopping, discount under Rule 23A. The gas tests for the opening in by the intersection can be conducted at the location of the fire, which will suffice for the opening. If no gas tests are conducted at the fire location, discount under Rule 23A.

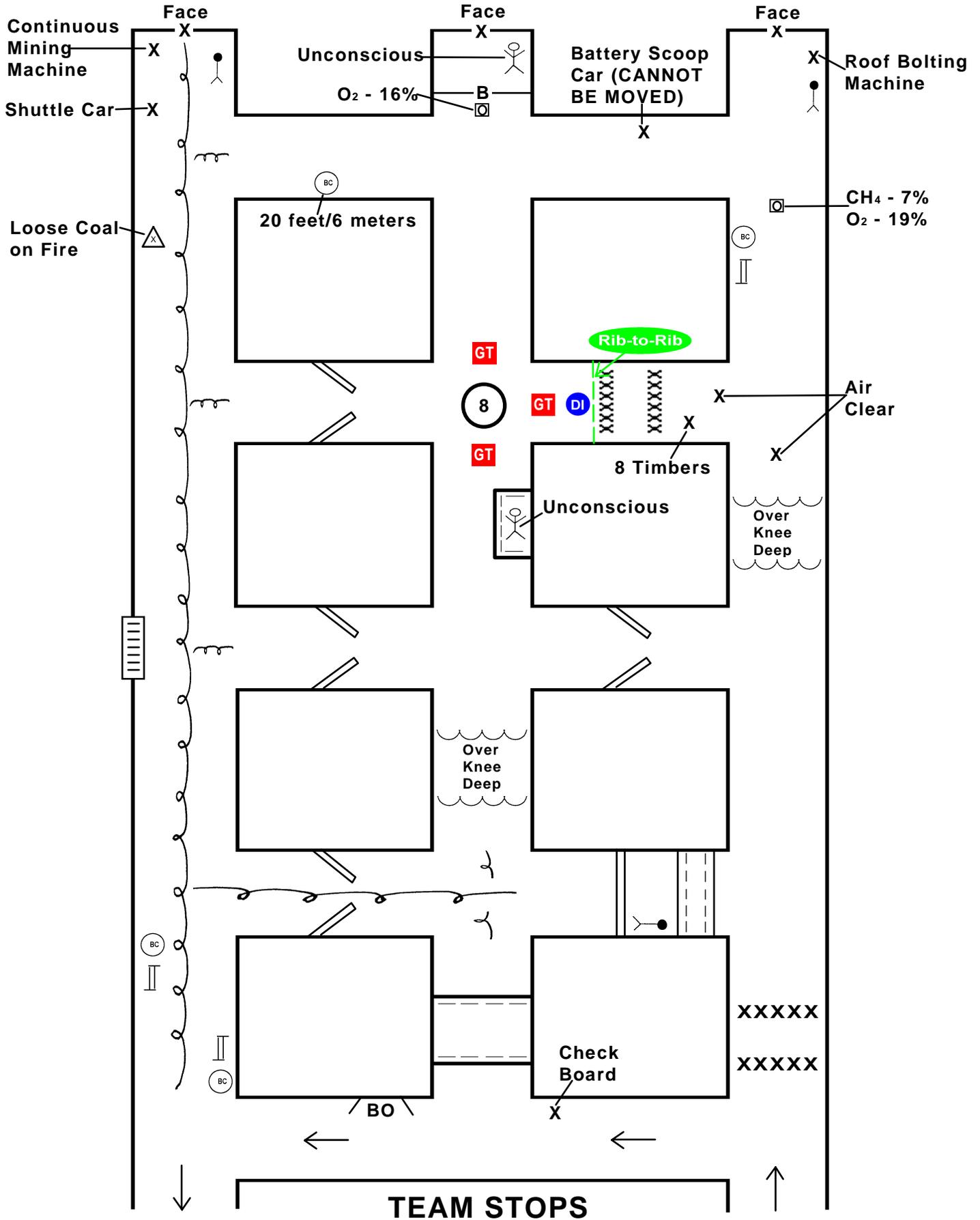
Roof tests (rib-to-rib) are required at the location of the fire, prior to extinguishing the fire (Rule 22).

DI is required on the damaged permanent stopping in the opening toward the No. 2 Entry (Rule 26).

**\*NOTE:** Team will be in smoke and all team members must be attached to the lifeline (Rule 21).

# 1999 International Mine Rescue Contest

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## TEAM STOP NO. 8

The team must advance to the 3rd intersection in the No. 2 Entry (Rule 44C).



Gas tests are required for the openings (3) of the intersection (Rule 23B).



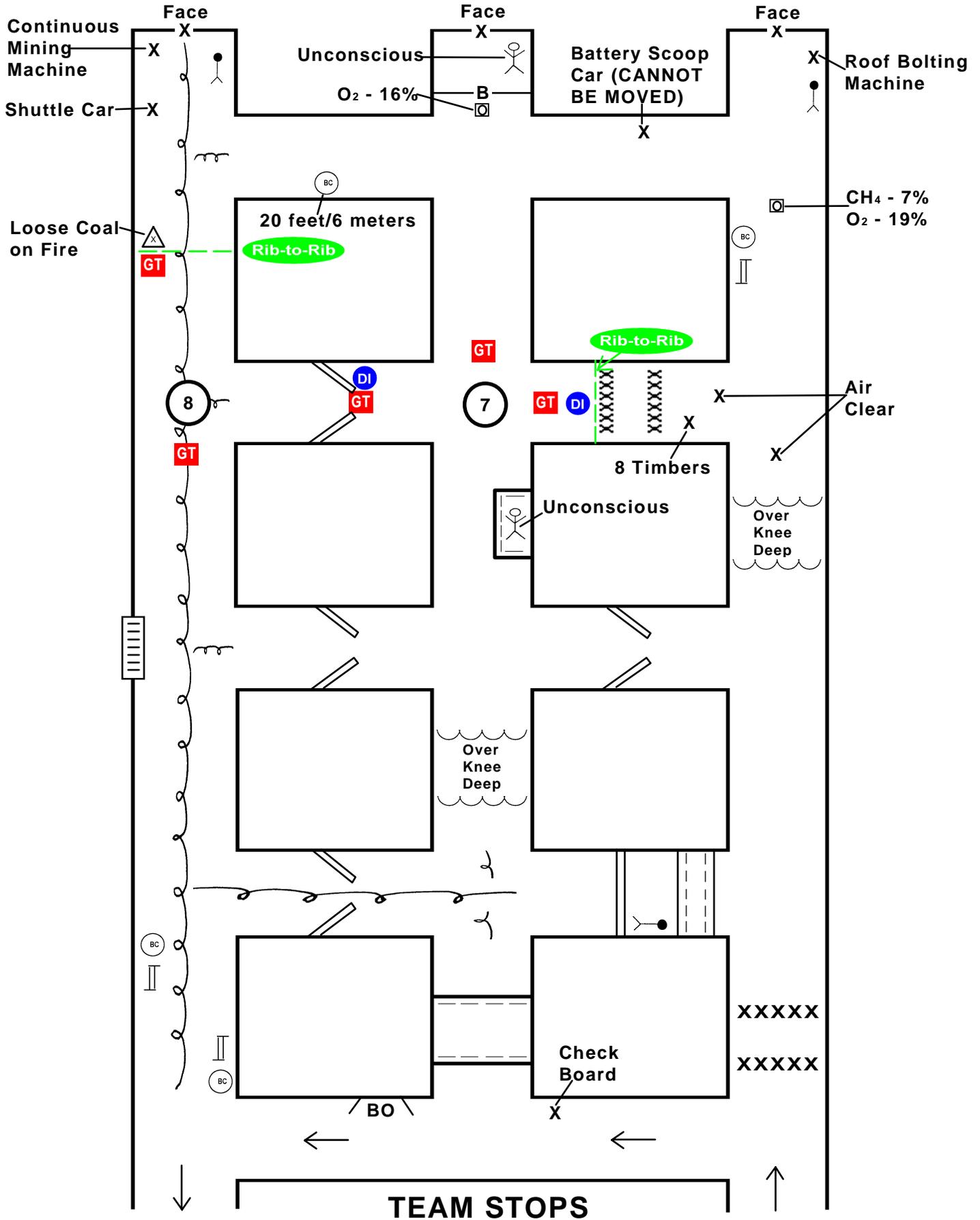
Roof tests (rib-to-rib) are required at the caved airtight in the crosscut between the No. 2 and No. 3 Entries (Rule 22).



DI is required at the caved airtight in the crosscut between the No. 2 and No. 3 Entries (Rule 26).

# 1999 International Mine Rescue Contest

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## TEAM ADVANCES TO 3RD INTERSECTION IN THE NO. 2 ENTRY

### TEAM STOP NO. 7

Gas tests are required for the openings (3) of the intersection (Rule 23B). The gas tests for the opening toward the No. 1 Entry should be conducted at the damaged permanent stopping, which will suffice for the opening. If no gas tests are conducted at the stopping, discount under Rule 23A.

Roof tests (rib-to-rib) are required at the caved airtight in the crosscut between the No. 2 and No. 3 Entries (Rule 22).

DI's are required (1) on the damaged permanent stopping in the crosscut toward the No. 1 Entry and (2) at the caved airtight in the crosscut toward the No. 3 Entry (Rule 26).

### TEAM STOP NO. 8

The team must advance to the 3rd intersection in the No. 1 Entry (Rule 44C).

Gas tests are required in the openings (2) of the intersection (Rule 23B). The gas tests for the opening in by the intersection can be conducted at the location of the fire, which will suffice for the opening. If no gas tests are conducted at the fire location, discount under Rule 23A.

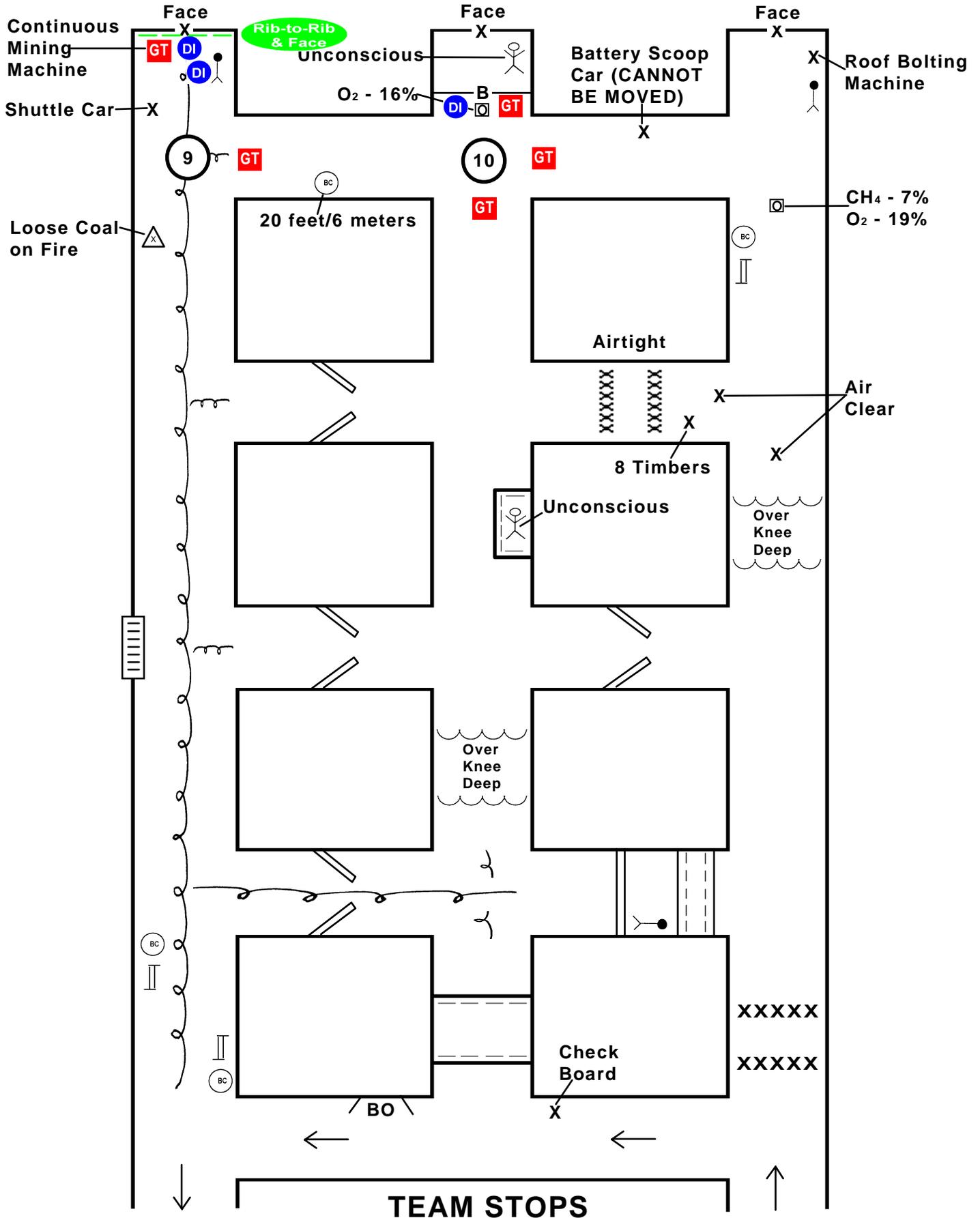
Roof tests (rib-to-rib) are required at the location of the fire, prior to extinguishing the fire (Rule 22).

No DI's are required at this team stop.

**\*NOTE:** Team will be in smoke and all team members must be attached to the lifeline (Rule 21).

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**\*NOTE:** The team may now advance to the 4th intersection in the No. 1 (contaminated) Entry OR the No. 2 (adjacent) Entry (Rule 44B).

## **TEAM ADVANCES TO THE 4TH INTERSECTION IN THE NO. 1 ENTRY**

### **TEAM STOP NO. 9**

Gas tests are required for the openings (2) of the intersection (Rule 23B). The gas tests for the opening in by the intersection should be conducted at the face, which will suffice for the opening. If no gas tests are conducted at the face, discount under Rule 23A.

Roof tests (rib-to-rib and face) are required for the face of the No. 1 Entry (Rule 22).

DI's are required (1) at the location of the body and (2) at the face of the No. 1 Entry (Rule 26).

The captain must physically examine (by touching) the body (Rule 31).

**\*NOTE:** Team will be in smoke and all team members must be attached to the lifeline (Rule 21).

### **TEAM STOP NO. 10**

Team must advance to the 4th intersection in the No. 2 Entry (Rule 44C).

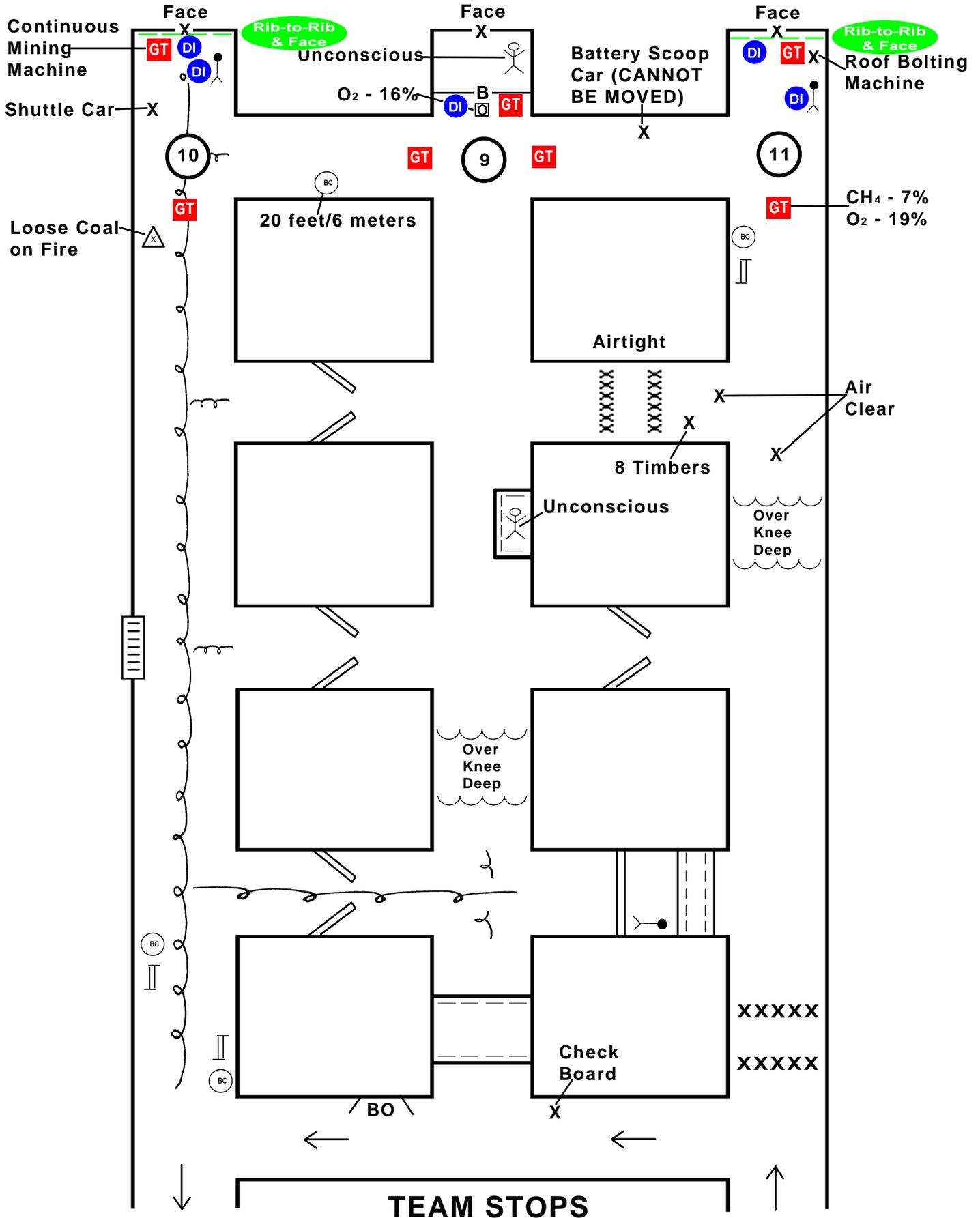
Gas tests are required in the openings (3) of the intersection (Rule 23B). The gas tests for the opening in by the intersection should be conducted at the barricade, which will suffice for the opening. If no gas tests are conducted at the barricade, discount under Rule 23A.

No roof tests are required at this team stop.

DI is required on the barricade (Rule 26).

# 1999 International Mine Rescue Contest

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## TEAM ADVANCES TO THE 4TH INTERSECTION IN THE NO. 2 ENTRY

### TEAM STOP NO. 9

Gas tests are required in the openings (3) of the intersection (Rule 23B). The gas tests for the opening inby the intersection should be conducted at the barricade, which will suffice for the opening. If no gas tests are conducted at the barricade, discount under Rule 23A.

No roof tests are required at this team stop.

DI is required on the barricade (Rule 26).

### TEAM STOP NO. 10

Gas tests are required for the openings (2) of the intersection (Rule 23B). The gas tests for the opening inby the intersection should be conducted at the face, which will suffice for the opening. If no gas tests are conducted at the face, discount under Rule 23A.

Roof tests (rib-to-rib and face) are required for the face of the No. 1 Entry (Rule 22).

DI's are required (1) at the location of the body and (2) at the face of the No. 1 Entry (Rule 26).

The captain must physically examine (by touching) the body (Rule 31).

**\*NOTE:** Team will be in smoke and all team members must be attached to the lifeline (Rule 21).

### TEAM STOP NO. 11

Team must advance to the 4th intersection in the No. 3 Entry (Rule 44C).

Gas tests are required for the openings (2) of the intersection (Rule 23B). The gas tests for the opening inby the intersection should be conducted at the face, which will suffice for the opening. If no gas tests are conducted at the face, discount under Rule 23A.

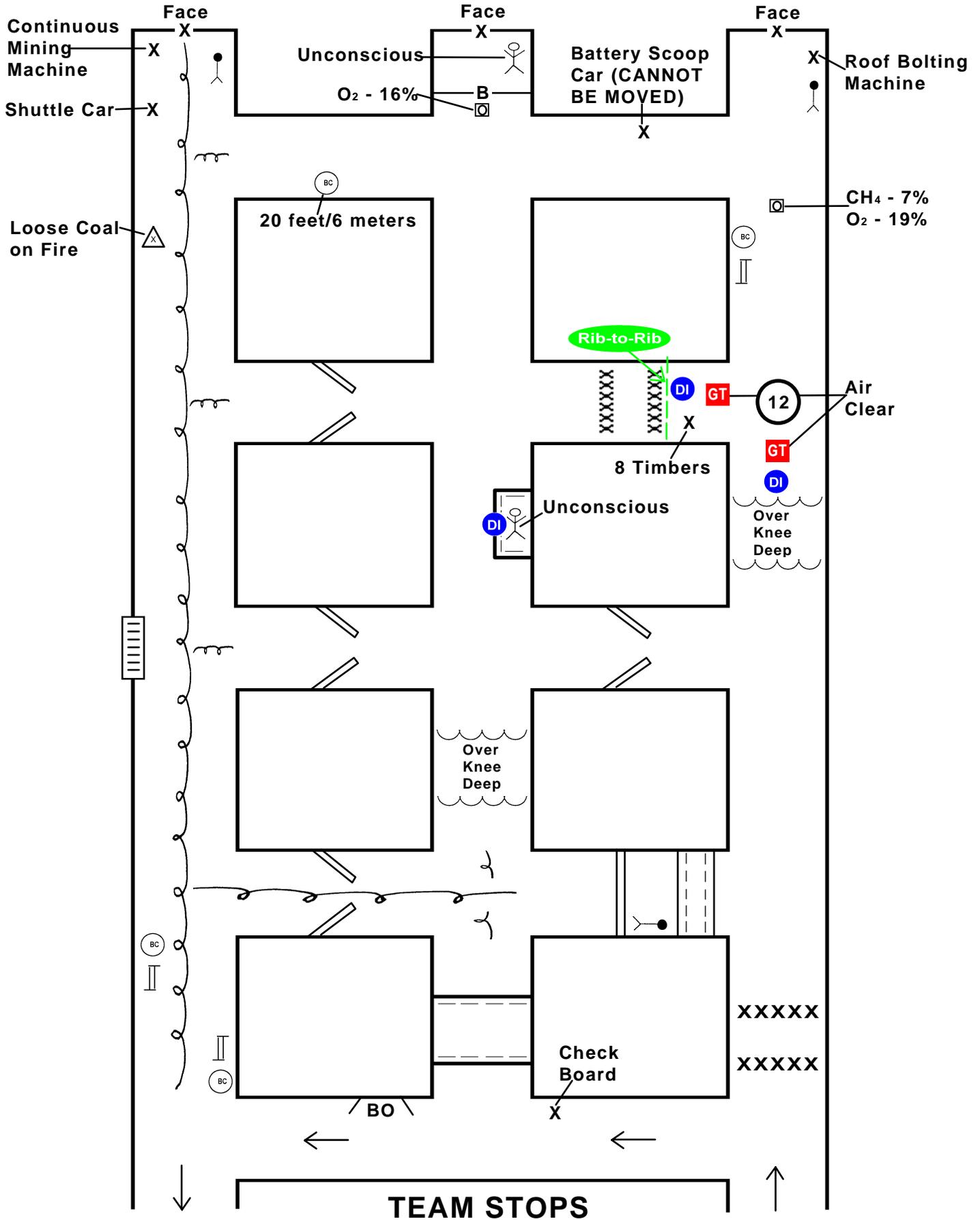
Roof tests (rib-to-rib and face) are required at the face of the No. 3 Entry (rule 22).

DI's are required (1) at the location of the body and (2) at the face of the No. 3 Entry (Rule 26).

The captain must physically examine (by touching) the body (Rule 31).

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## TEAM STOP NO. 12

The team must tie back to the 3rd intersection in the No. 3 Entry (Rule 44C).

Gas tests are required for the openings (2) of the intersection (Rule 23B).

Roof tests (rib-to-rib) are required at the caved airtight in the opening toward the No. 2 Entry (Rule 22).

DI's are required (1) at the water over knee deep in the No. 3 Entry and (2) at the caved airtight in the crosscut from the No. 3 to the No. 2 Entries (Rule 26).

**\*NOTE:** The team will find eight (8) timbers on Team Stop No. 12. Once the team has completed all functions at this team stop, they must retrieve the timbers and retreat to the location of the unconscious live person under the unsafe roof between the 2nd and 3rd intersection in the No. 2 Entry (Rule 41C).

The team must install roof support to recover the patient. (See Page 29 of rule book for proper method on installing supports)

Team must protect the unconscious live person with an approved apparatus with full facepiece (Rule 33) and remove the patient promptly to the fresh air base (Rule 41A).

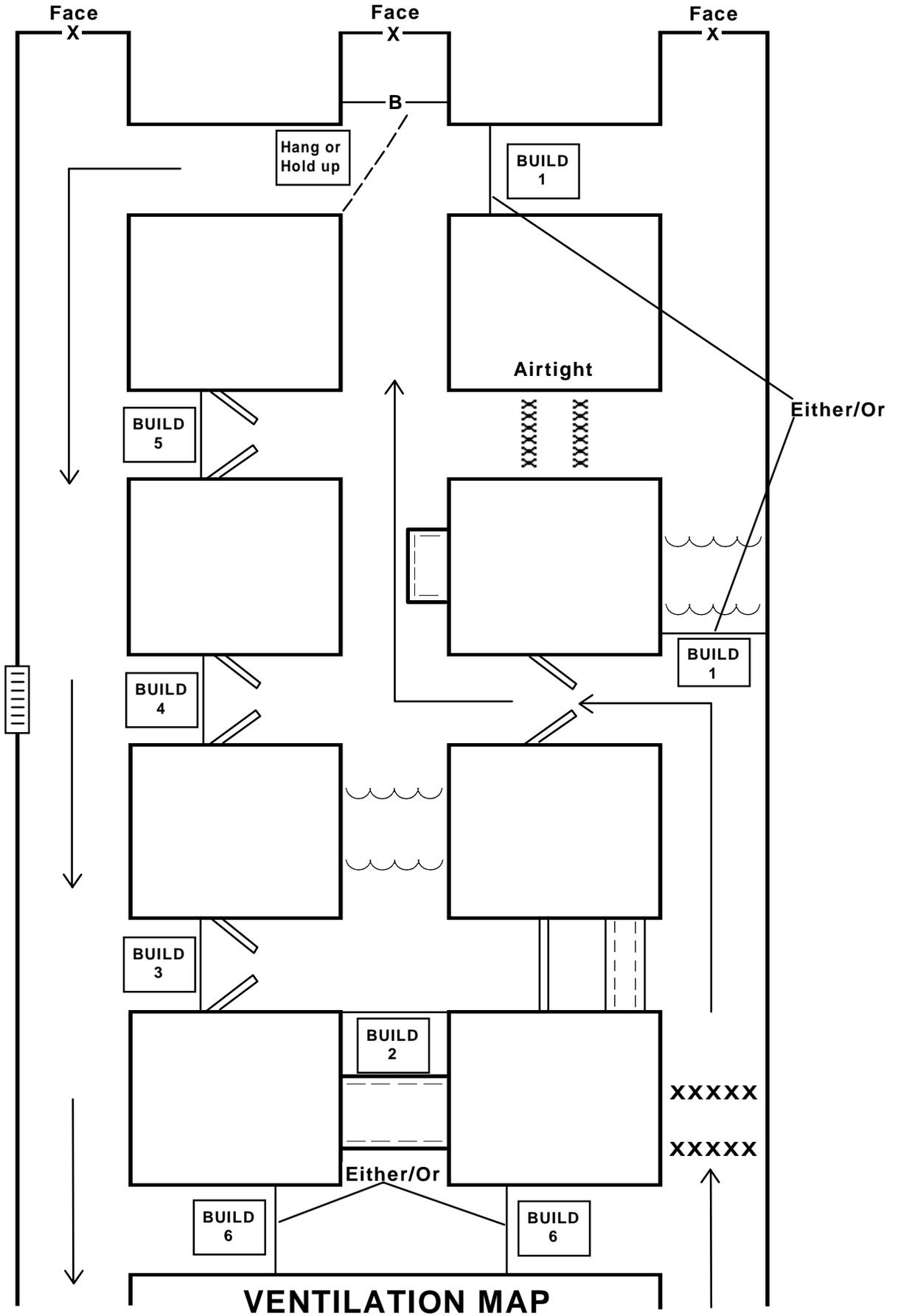
DI is required at the location of the patient (Rule 26).

The captain must physically examine (by touching) the live person (Rule 31).

**\*NOTE:** The team has accounted for 4 of the 5 missing persons and has explored all areas necessary to ventilate the irrespirable atmosphere outside the barricade (Rule 33).

# 1999 International Mine Rescue Contest

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**VENTILATION MAP**

## VENTILATION CHANGE

The first five (5) temporary stoppings may be erected in any sequence.

1. Build a temporary stopping in the No. 3 Entry between the 2nd and 3rd intersection or in the 4th crosscut between the Nos. 2 and 3 Entries.
2. Build a temporary stopping in the No. 2 Entry between the fresh air base and the 1st intersection.
3. Rebuild the stopping in the 1st crosscut between the Nos. 1 and 2 Entries.
4. Rebuild the stopping in the 2nd crosscut between the Nos. 1 and 2 Entries.
5. Rebuild the stopping in the 3rd crosscut between the Nos. 1 and 2 Entries.
6. Build a stopping in the fresh-air base between the Nos. 1 and 2 entries or between the Nos. 2 and 3 entries.

**\*NOTE:** The permanent stopping in the 1st crosscut between the Nos. 2 and 3 entries must also be intact and airtight.

**\*NOTE:** The judges will relocate the placards/ventilation arrows to indicate ventilation entering the No. 3 entry and returning out the No. 1 entry. The arrows must be replaced if the team short circuits the air at the fresh-air base.

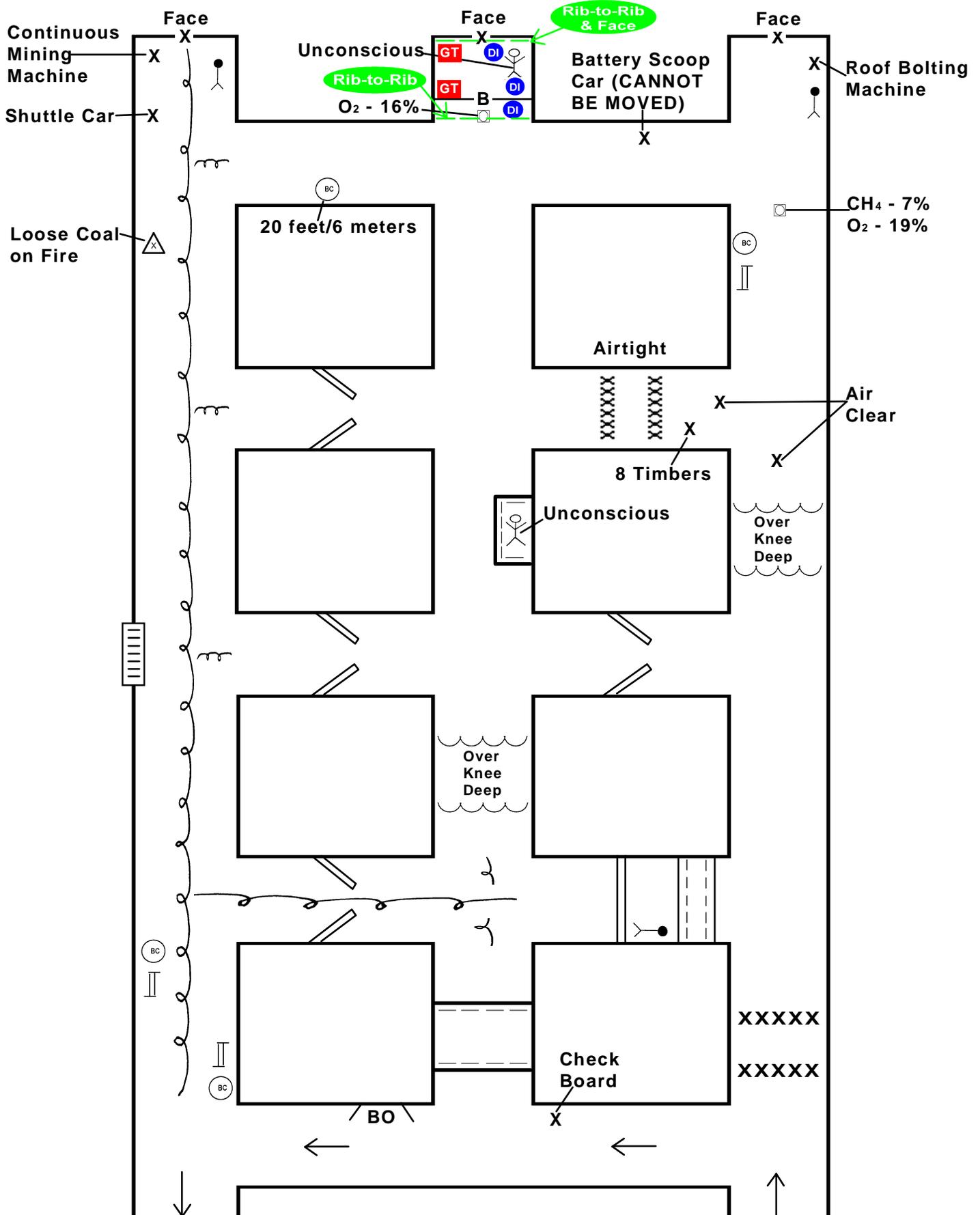
**\*NOTE:**  Roof tests (rib-to-rib) are required at all newly erected stoppings built by the team (Rule 22).

**\*NOTE:**  Prior to clock being stopped, the captain must D&I all newly erected stoppings (Rule 26).

7. Hang or hold line curtain to within 5 feet of the barricade (Rule 18). Curtain must extend from the left side of the entry to clear irrespirable atmosphere.

# 1999 International Mine Rescue Contest

## September 23, 1999



## BREACHING THE BARRICADE

A temporary stopping (airlock) is required to be erected prior to breaching the barricade (Rule 42).

Roof tests (rib-to-rib) are required at the location in which the airlock is to be erected (Rule 22).

DI is required on the temporary stopping erected by the team (Rule 26).

Gas tests must be conducted by the captain before any team member enters the area (Rule 23D), and at the face (Rule 23A).

Gas tests must be made at the placard indicating an irrespirable atmosphere outside the barricade if the entire team passes the placard after the ventilation change (Rule 23F).

Roof tests are required at the face of the No. 2 Entry (Rule 22).

DI's are required (1) at the face of the No. 2 Entry and (2) at the location of the unconscious live person (Rule 26).

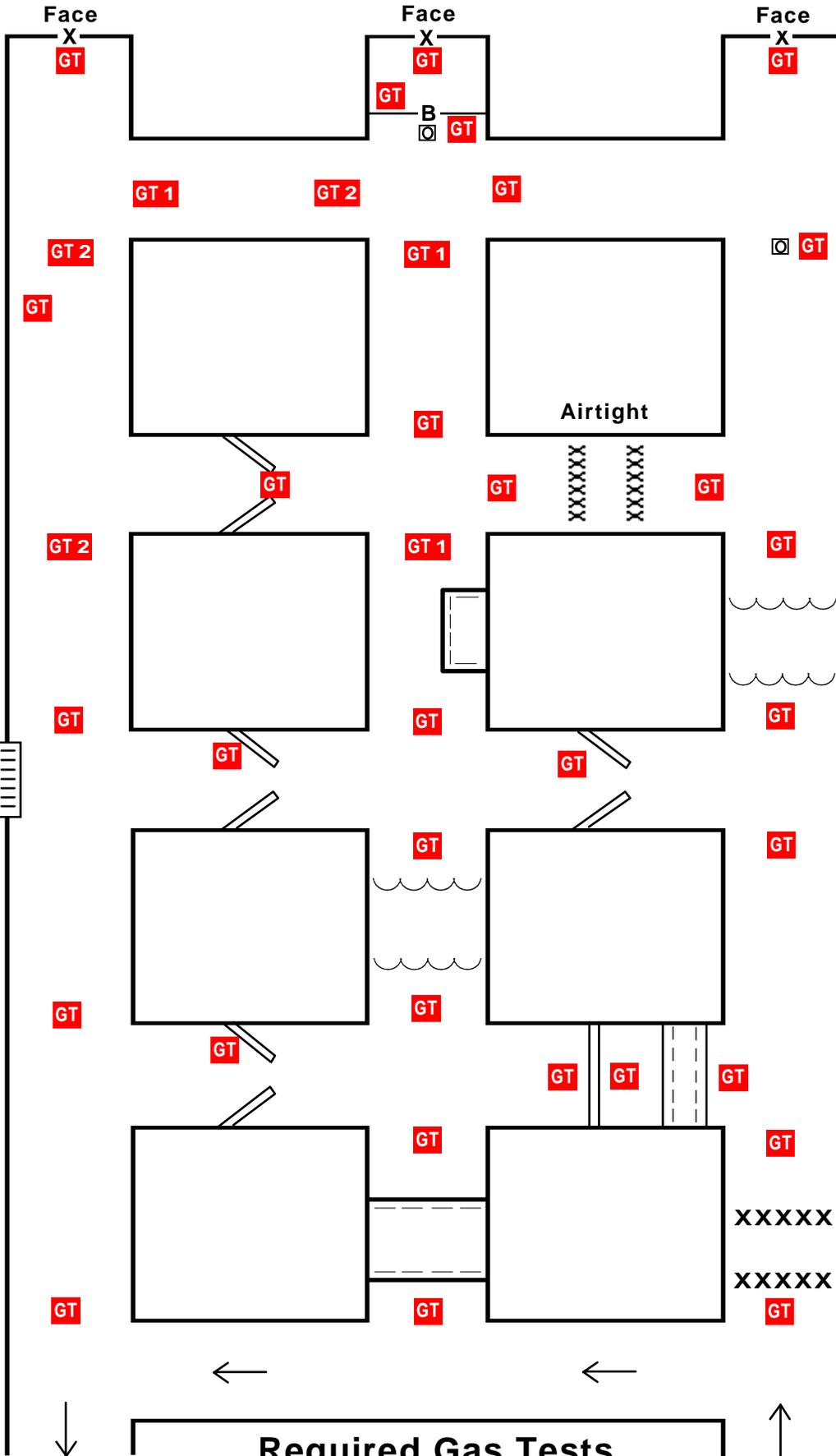
The captain must physically examine (by touching) the live person (Rule 31).

# 1999 International Mine Rescue Contest

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GT 1 - If advanced No. 1 Entry first

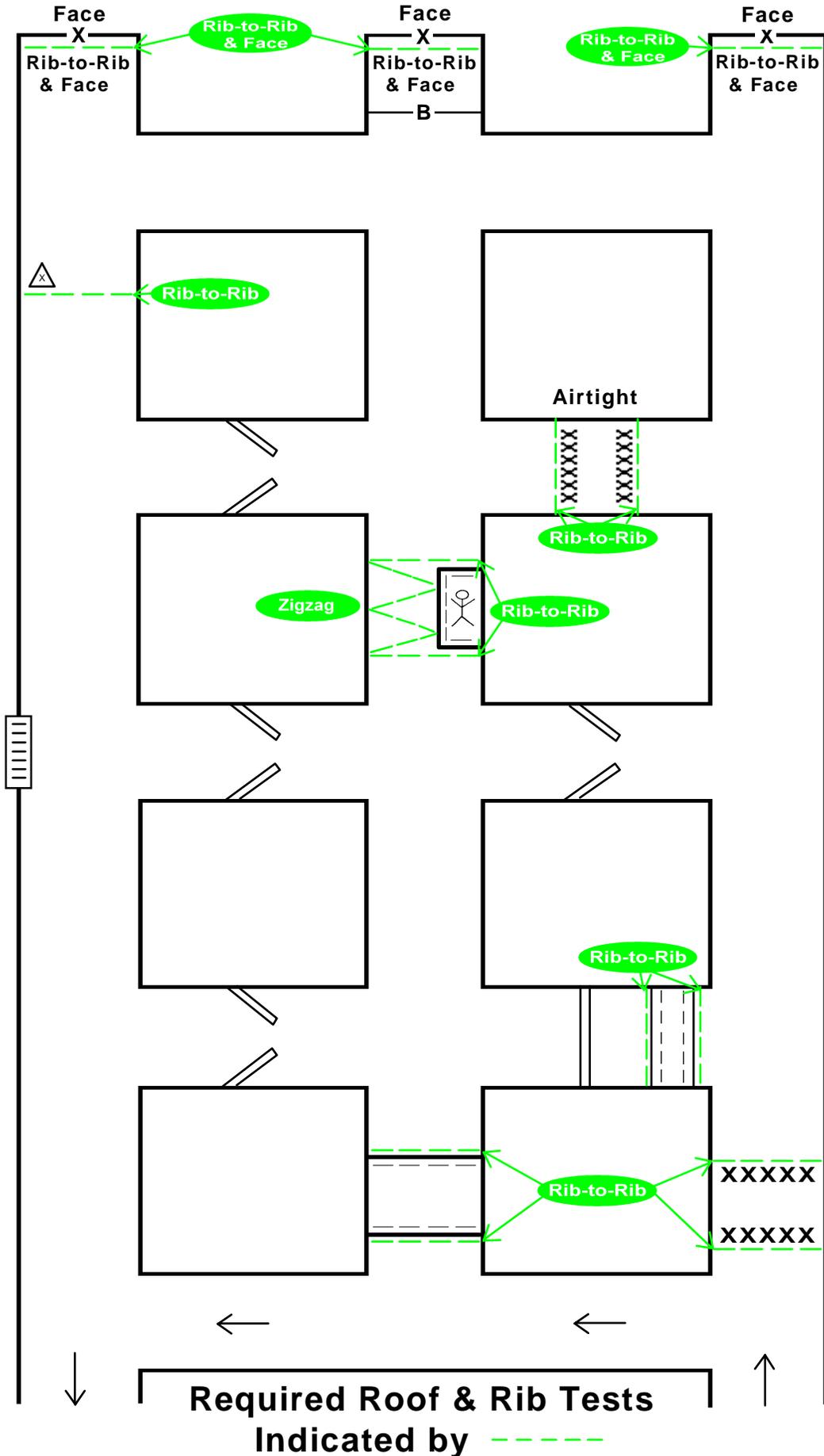
GT 2 - If advanced No. 2 Entry first



**Required Gas Tests  
Indicated by GT**

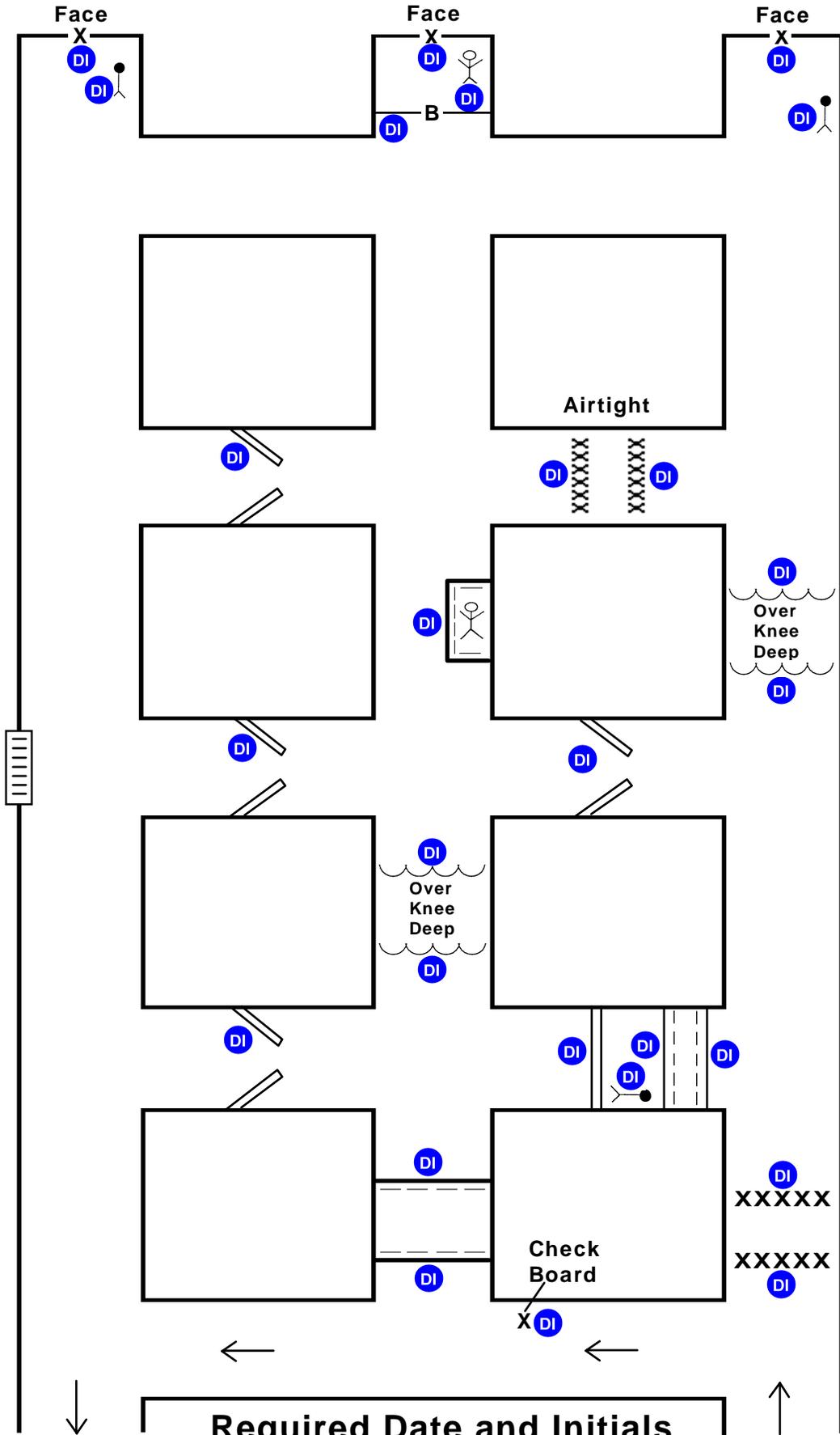
# 1999 International Mine Rescue Contest

## September 23, 1999



# 1999 International Mine Rescue Contest

## September 23, 1999



Required Date and Initials  
Indicated by **DI**

# PLACARD PLACEMENT

